I. Project Summary

1. Project Description

The Macaé Merchant Power Plant is a simple cycle power plant fueled by natural gas with a rated capacity of 895 MW, equipped with twenty GE LM 6000 combustion turbines for power generation purposes. It is located on a property covering 300 hectares in the rural region of the Macaé Municipality, Rio de Janeiro State, Brazil. (See Figure I-1)

The altitude of this site ranges from fifty meters above sea level to five meters, and was originally gently-sloping land covered with grass used for grazing in the past, with bushes and medium-sized trees.

In charge of operations and maintenance, El Paso Operations & Maintenance (O&M) has a staff of 55 employees, including the operators, maintenance and administration personnel, and general service crews.

The project consists of the following elements:

- power generation plant
- dedicated gas pipeline

The existing 345 KV power transmission line owned by Furnas and running across the site will be used for connection to the grid, eliminating the need for additional transmission lines.

The plant has the following main equipment and systems:

- 20 natural gas-fired turbine generator groups
- 20 air-cooled generators;
- 15 chillers
- 10 transformers
- Water treatment system
- Effluents collection and treatment system
- Atmospheric emissions control system
- Noise control system
- Solid wastes collection and disposal system
- Electrical systems
- Control, protection and communication systems
- Step-up transformers and 345 kV switchyard.

After the step-up transformers have raised the generating tension from 13.8 KV to 345 KV, the power plant switchyard will connect the plant to the regional grid though the substation (Connection Substation) feeding the FURNAS transmission line.

This project started up operations early in 2002, with the remaining four units coming on-stream in July 2002. The plant will operate with a guaranteed availability factor of 90% of its capacity, due to the demand conditions expected for the interconnected system. During this period there will be brief shutdowns for scheduled maintenance activities.

The schematic site location map shown below is illustrated with an aerial view of the plant as built, the plant layout, and block diagrams illustrating its key processes. The appendix contains supporting documentation.

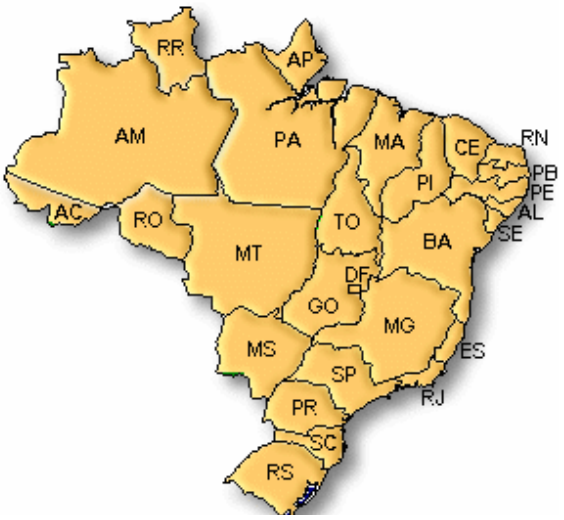

Figure I.1 Project Location

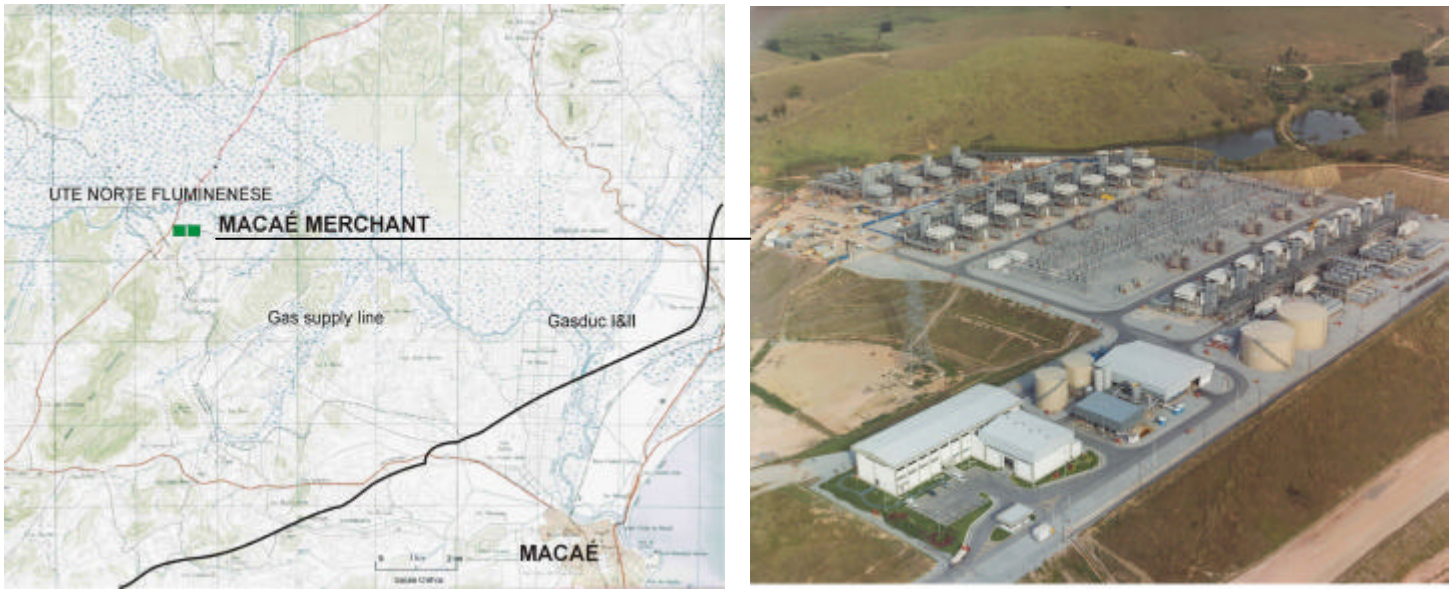

Figure I-2- Regional Map and As Built Aerial View

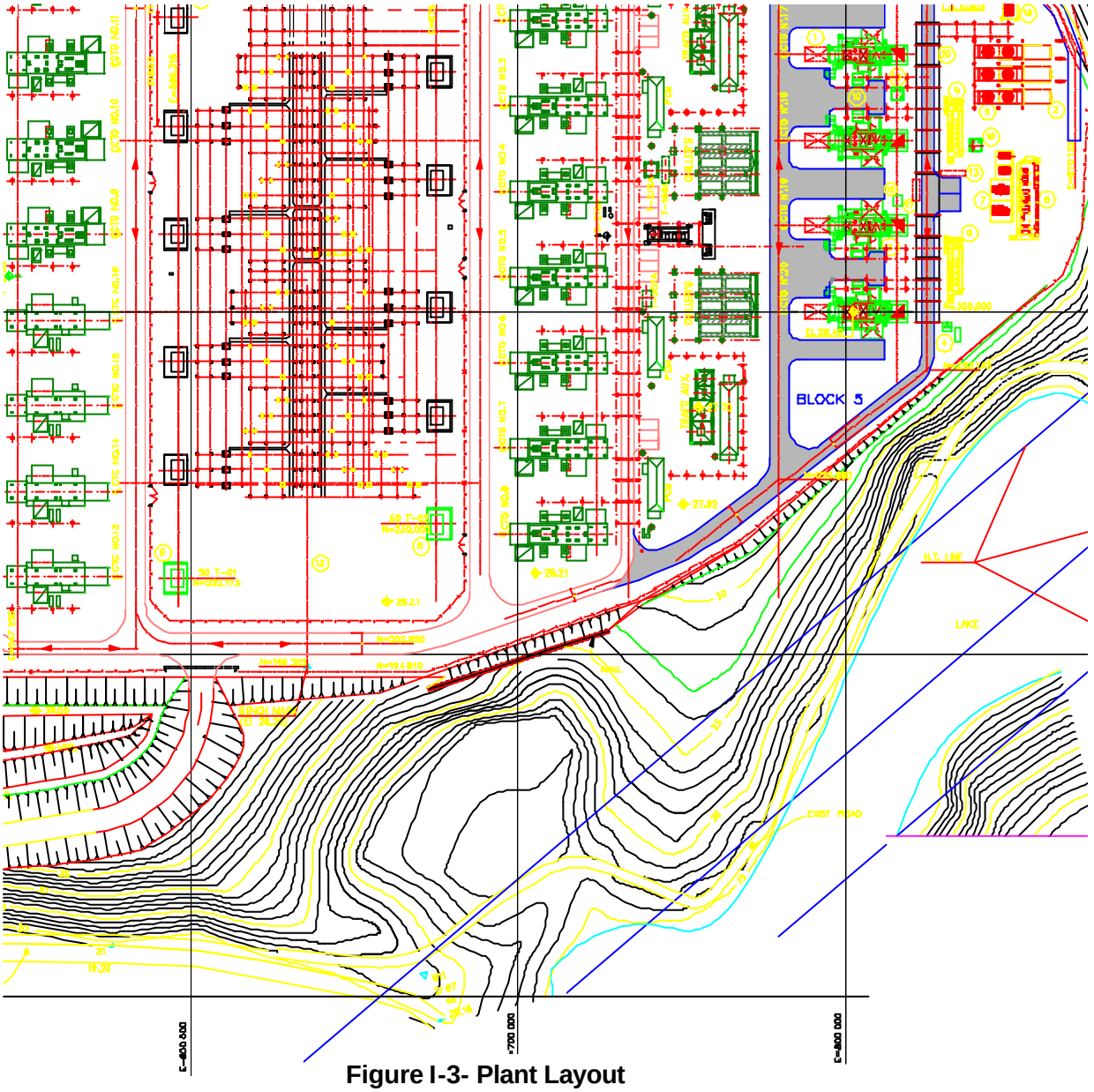

Figure I-3- Plant Layout

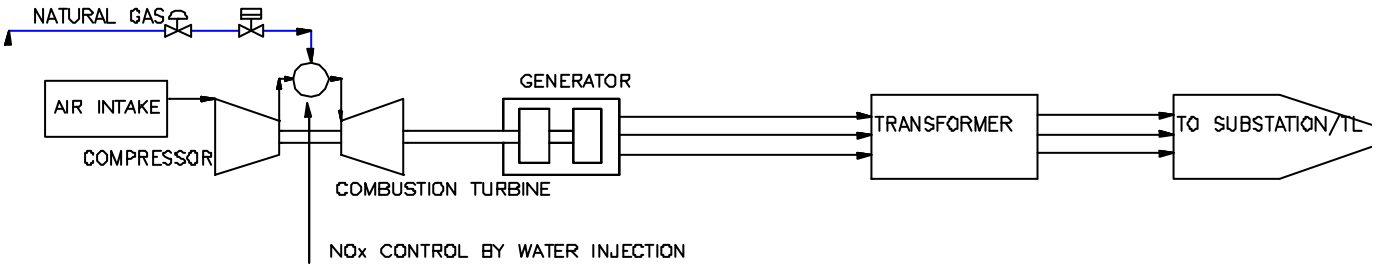

Figure I-4 - Simple Cycle, one Combustion Turbine